

Level  
**E & F**

**Exploring**

**Content  
Area  
READING**

**Teacher's Guide**

For teachers' inspection ONLY

# Exploring

## Content Area Reading

### Teacher's Guide

#### Level E

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# Science Lesson 1

## Sight Words

earth life light sometimes without

## Essential Words

**gravity:** Place an object in the air and let it fall to the floor. Tell students that the force that lets objects fall to the surface of Earth is called “gravity.” Explain that without gravity, all objects are weightless and will float.

**helium:** Bring in a helium-filled balloon to show students. Tell them that the balloon is filled with a gas called helium that makes the balloon float up in the air. “Helium” is a light and colorless gas.

**swirling:** If possible, find a picture of Earth that shows swirling gases and clouds. Point out the “swirling” gases. Tell students that “swirling” describes something that moves around in circles.



## Teaching Strategies

1. Think of a recent classroom activity or event. It must be an event that involved all students in the classroom.
2. Tell students that you want them to help you write a paragraph that describes the event. Before writing a paragraph, explain that you want to first organize the information using a graphic organizer. Ask, “What is the most important information you can share about the classroom event?” Let students volunteer their ideas. If necessary, model an appropriate response. Write the ideas on the board in a graphic organizer (like the one in the Exercise).
3. Then ask students, “What other information is important for us to include in the paragraph?” Put students in triads and let them discuss ideas that should be included in the paragraph. Tell them to think of two ideas to contribute to the rest of the class.
4. When the triads have finished discussing their ideas, poll them to find out what information they would like to include in the paragraph. If necessary, begin the discussion by modeling a few of your own ideas. Throughout the discussion, distinguish between the main idea(s) and the smaller details of the paragraph. Fill out the rest of the graphic organizer on the board so that students can see the main idea and the supporting details. Write a paragraph about the event as a group.
5. Have students turn to Science Lesson 1 in the student book. Explain that you are going to read information about the sun. Let students share their knowledge about the sun. Tell them to look for the main ideas about the sun.
6. Read Science Lesson 1 aloud. Then as a class, complete the graphic organizer in the Exercise so that students can record both the main idea and details from Science Lesson 1.

## Science Lesson 1: Picture Book

### Vocabulary

Use these vocabulary words and definitions to aid students' comprehension of the lesson.

1. **current**—a flow of water, air, or gas in a specific direction
2. **disrupt**—to interrupt
3. **flares**—sudden bursts of fire
4. **mass**—the size and weight of an object
5. **matter**—anything that makes up an object
6. **nuclear**—energy from the center, or core of an object
7. **produce**—to make or generate
8. **provides**—supplies, or gives
9. **radiation**—the energy that spreads out
10. **surface**—the outside part of an object

### Comprehension Connection Answers

The following are suggested answers to the Comprehension Connection section in the student reading lesson. The answers are suggestions to help in your classroom discussions.



#### Before Reading

1. The text should provide facts about the sun and its parts.
2. A diagram is a picture that shows the parts of something. These may be external or internal parts. This diagram is designed to show both the external and internal parts of the sun.
3. Encourage students to share their prior knowledge. They are probably well aware that the Sun provides light and heat for Earth. They may also know that the Sun's energy makes life on Earth possible.



#### During Reading

1. The concentration of mass and enormous force of gravity there cause nuclear fusion, which produces the sun's heat.
2. Sunspots appear where magnetic fields prevent gas from reaching the surface (they are "cool spots"). Solar flares ("hot spots") occur where gas shoots from the surface deep into space.
3. First, energy moves by photons (electromagnetic waves). Then it travels by convection currents to the surface.



#### After Reading

1. Radiation is energy in the form of waves. Encourage students to express how energy takes different forms: heat, light, electricity, and so on.
2. Accept all answers that students support with logical reasons. Knowledge of how atoms and gases behave at certain temperatures and in certain volumes could help scientists deduce inner activities of the Sun.
3. Possible answer: The sun creates and radiates vast quantities of energy in the form of radiation.

## Exploring Content Area Reading—Level E



## Science Lesson 2: Textbook

## Matter

### Vocabulary

Use these vocabulary words and definitions to aid students' comprehension of the lesson.

1. **compress**—to push together
2. **force**—power, or energy
3. **formation**—a specific shape, or structure
4. **horizontally**—moving in a “left to right” direction
5. **matter**—the material that makes up everything, solid, liquid, or gas
6. **molecules**—the smallest particles of matter
7. **particle**—a small part of matter
8. **substance**—the material that makes up any object
9. **vertically**—moving in an “up and down” direction

### Comprehension Connection Answers

The following are suggested answers to the Comprehension Connection section in the student reading lesson. The answers are suggestions to help in your classroom discussions.



#### Before Reading

1. Students may mention water and beverages, syrup, liquid soap, oil, gas, and so on. They should understand that liquids are pourable and do not have a set shape.
2. Review that matter is anything that has mass and occupies space. Encourage students to share their prior knowledge of states of matter.
3. A boiling point is the temperature at which matter changes from a liquid to a gas. The graph implies that any type of matter can exist as a gas.



#### During Reading

1. The gas form would take up more room than the liquid or solid because its particles are farthest apart.
2. Iron takes more energy to overcome the force of attraction among its particles, so they must be packed together more closely than those of silver, which would make iron more dense.
3. Zinc, calcium, silver, and iron have a definite shape because they are solids.



#### After Reading

1. Particles move at increasing speeds because they take on more energy and their attraction to each other is decreased at each successive stage.
2. Students' answers should show understanding of particle energy and the characteristics of solids, liquids, and gases.
3. Possible answer: Matter exists as a solid, liquid, or gas, with solids having great particle attraction and little particle energy and gases having little particle attraction and great particle energy.

# Science Lesson 3

## Sight Words

country keep last really river

## Essential Words

**assembled:** If possible, find a puzzle to put together. Explain that when you “assemble” something, you put it together.

**estimates:** Use information from students to make an estimate. You could say, “I estimate that there are ten students who are wearing sweaters,” or “I estimate that there are three students who are absent.” Tell students that a person who “estimates” makes a very good guess.

**waddled:** Imitate what a waddle looks like. Tell students that a “waddle” is a slow, swaying walk. Explain that many animals, including reptiles, waddle.



## Teaching Strategies

- Write the following sentences on the board:
  - When I get home from school, it is a priority to finish my homework before I go out to play because doing my homework is more important than playing.
  - My mom is very reliable because I can always count on her to pick me up from school everyday at the exact same time.
  - The stench from the garbage was so strong that I had to plug my nose.
- Explain that many words have more than one meaning. Ask students, “How does a reader know which meaning is appropriate for the sentence he or she is reading?” Lead students to understand that context, or the other words in the sentence, helps a reader determine the correct meaning of a multiple-meaning word.
- Go through the sentences one at a time, and talk about the meanings of the underlined words. Underline context clue(s) using a different colored pen or chalk.
- Have students turn to Science Lesson 3 in the student book. Tell students that you are going to read a magazine article about crocodiles.
- Use a word web to organize information about crocodiles. As students share their prior knowledge about crocodiles, record it on a word web on the board. If necessary, gather books and other visual materials to share and also have them available for students to read independently.
- Read Science Lesson 3 aloud.
- Ask students to work with a partner to find one multiple-meaning word in the article. Use the Exercise so they can write about the definition of the word based on context clues.

## Science Lesson 3: Magazine Article

## This Croc Really Rocks

### Vocabulary

Use these vocabulary words and definitions to aid students' comprehension of the lesson.

1. **assemble**—to put together, or gather
2. **cope**—to deal with
3. **discover**—to find something for the first time
4. **estimate**—to approximate, or make an educated guess
5. **fossils**—bones that are found in the ground that are the remains of an animal from long ago
6. **modern**—having to do with the present-day
7. **paleontologist**—a scientist who studies life from the past
8. **reptile**—a class of animals, who are scaly vertebrates, related to dinosaurs
9. **scutes**—armor-like plates on top of the crocodile's head, that are used for protection

### Comprehension Connection Answers

The following are suggested answers to the Comprehension Connection section in the student reading lesson. The answers are suggestions to help in your classroom discussions.



#### Before Reading

1. Students should predict they will read about a giant crocodile that lived in prehistoric times.
2. Students may find the title clever and catchy. The author uses the informal name croc for crocodile and the even more informal verb rocks. Plus, the title has both alliteration (really, rocks) and assonance (croc, rocks), which make it fun to say.
3. Encourage students to share their prior knowledge about these reptiles, including characteristics such as size, body covering, habitat, and eating habits.



#### During Reading

1. They can analyze whole, living organisms that are the most like the extinct species and then compare skeletons to predict the extinct animal's weight, length, and so on.
2. Its many sharp teeth and its long sharp claws suggest that it ate other animals.
3. Because the fossil is nearly complete, scientists can tell what the animal was like. Before, they had only fragments.



#### After Reading

1. It was more than twice as long and weighed up to eight times more.
2. He uses comparisons fifth graders can easily picture and clever, informal language: "Don't worry!" "It last waddled the Earth...." "Those choppers could give a bite with might!"
3. Students may like the idea of discovery and the research that means interaction with living reptiles ("getting on the back of a croc with a ruler").